

PROVINCETOWN HARBOR.

MARCH 1, 1860.—Laid upon the table, and ordered to be printed.

Mr. ELIOT, from the Committee on Commerce, made the following

REPORT.

The Committee on Commerce, to whom were referred the various memorials and petitions concerning the preservation and protection of the harbor of Provincetown, at Cape Cod, in the Commonwealth of Massachusetts, report :

That for many years a gradual and continued encroachment has been made by the action of wind and tide upon that portion of the beach lands in the towns of Truro and Provincetown which forms the coast line of the important harbor of Provincetown.

The harbor is formed by the curve at the extremity of Cape Cod, upon which the town of Provincetown is situated. From the settlement of the country it has been one of the deepest and safest harbors upon the Atlantic coast. It is believed that so full and accessible accommodations for a fleet of large armed vessels or deeply laden merchant ships is not afforded by the natural formation of any other portion of our sea-coast. A slight reference to the map will indicate the peculiar advantages and the national importance of this harbor, upon whose waters the "Great Eastern" may float securely, and within which that mammoth steamer might be navigated with ease and safety. It will be seen, however, that between the Atlantic ocean on the north and the channel of East harbor on the south lies a narrow tract of beach land, composed, in fact, wholly of sand, which now has become so narrow as to form into a peninsula the town of Provincetown. This narrow tract, which is becoming more narrow continually by the natural action of the wind and of the ocean, is the only barrier which prevents the instant destruction of the entire harbor of Cape Cod. Many years ago upon the sea side of this beach land, which was then much wider, and afforded apparently a substantial protection to the inner harbor, there were trees and shrubs growing, which, with a coarse beach grass found there, tended to bind the sandy soil and prevent the action upon it of the northerly winds and of the tides. The lands at that time were much higher than at present; and since the trees and brush wood have been destroyed, the effect of the winds from the north and the east has been to break up the face of the land and to remove, in immense heaps, the sandy surface, from north to south,

toward and into the harbor itself, at once making the sandy barrier less secure and filling in the harbor. The whole of this beach barrier is composed of sand now so loose that a heavy wind from any point between the northeast and the northwest will lift up in heaps like snow-drifts the uncertain surface. During one night the face of the beach will be essentially changed, and the valleys and hills of sand will have changed their places. The two immediate and necessary consequences of such a state of things have been that the general level of this strip of beach land has been lowered and also reduced in width; and it is true, in fact, that this beach, in some places, has so nearly washed the level of the sea that, during one snow-storm in the year 1857, the ocean on the north made a breach across the barrier which separates it from the harbors. If the wind, and storm, and tide should at any moment work together, it is obvious to all who have stood upon that neck of land that the danger of immediate destruction of the harbor would be imminent in the extreme. Another fact, which is remarkable, renders this inner harbor more insecure and exposed to destruction. The tides upon the ocean side of the Cape set toward the east, and are at their flood, or nearly so, before the effect of the incoming tide is felt in the inner harbor at the point where the dividing barrier of sand is most narrow. There is, therefore, when the tide is full upon the ocean side, an elevation of several feet above the water on the south or harbor side. If the ocean, with such a fall of water, should at any moment make a breach across the dividing sands, the force of the current would quickly carry into the channel and the inner harbor the whole intervening sands, leaving Provincetown an island in the Atlantic, and destroying forever the whole harbor of Cape Cod.

The attention of the legislature of Massachusetts and of the general government has been called to the necessity of providing some security from dangers which have been constantly growing more pressing, and some temporary and insufficient remedy has been applied from time to time by the planting of beach grass at various points upon this beach, where it was thought the loose sands might be thus held together. A letter is appended to this report, marked A, which specifies the appropriations that had been made prior to 1850. One subsequent appropriation of \$5,000, made in the year 1852, has been expended upon the harbor.

But the discontinuance of these small appropriations, and the more effective and threatening inroads upon the harbor which have since occurred, have again aroused public attention to the dangers of longer delay in providing some effectual remedy. In 1858 several memorials, not hitherto acted on, were presented to Congress, one of which, from citizens residing in Cape Cod, is annexed to this report, marked B. A letter from H. G. Wright, captain of engineers, in charge, dated April 30, 1858, and addressed to the honorable Secretary of the War Department, is herewith submitted, marked C.

In the Coast Survey report for the year 1857, upon page 148, will be found a report of H. L. Whiting, Assistant Coast Survey, under date of December 15, which is also appended hereto, marked D. Mr. Whiting had made an original survey of this harbor in 1849, and the

resurvey of 1857 was made, pursuant to a special request to the Superintendent, in November of that year for the express purpose of ascertaining the recent changes then apparent in the character and security of the harbor. No more recent official action upon this subject has come to the knowledge of the committee.

Your committee are of the opinion that some effectual remedy should be applied at once to preserve the harbor of Provincetown. Its importance as a national harbor is well understood. From its position and its physical formation it affords in time of war a safe anchorage for a naval force, and in time of peace an accessible and certain refuge for the largest merchant ships.

Your committee are unable to determine from any facts within their knowledge the precise remedy which is needed—whether a sea-wall, as stated in the memorial and referred to in the report of Mr. Whiting, or some other mode of protection to the harbor—and they recommend that an appropriation be made of the sum of fifty thousand dollars for the effectual preservation of this harbor, to be expended, or so much thereof as shall be required, under the direction of the Secretary of War, and upon such surveys and examinations as shall be judged necessary.

All which is respectfully submitted.

A.

BUREAU OF TOPOGRAPHICAL ENGINEERS,

Washington, June 11, 1850.

SIR: The only efforts made by the general government in reference to Cape Cod harbor, or harbor of Provincetown, as it is called in the appropriation laws on that subject, were such as were adapted to prevent the drifting of the sand of the beach into the harbor by the cultivation of such grasses and plants as would grow in such a soil, and, by covering the sand, prevent its drifting. For these purposes the following appropriations have been made, namely:

In 1826	-	-	-	-	-	-	-	\$3,500
In 1831	-	-	-	-	-	-	-	2,050
In 1832	-	-	-	-	-	-	-	4,000
In 1834	-	-	-	-	-	-	-	4,400
In 1835	-	-	-	-	-	-	-	4,400
In 1836	-	-	-	-	-	-	-	4,400
In 1838	-	-	-	-	-	-	-	4,500

Since 1838 no appropriations have been made, and it is supposed that the evil now complained of arises from a consequent discontinuing of the work, which was then left unfinished.

A small appropriation, similar to those formerly made, would enable the bureau to renew the work.

Respectfully, sir, your obedient servant,

J. J. ABERT,

Col. Corps Topographical Engineers.

Hon. G. W. CRAWFORD,
Secretary of War.

B

To the honorable Senate and House of Representatives in Congress assembled:

Your memorialists reside on Cape Cod, and are engaged in pursuits of the sea and land, which make them well acquainted with the benefits of the harbor of Cape Cod to the commerce of the world, and the pressing dangers that threaten to destroy it. It is true that it has withstood the encroachments of the sea for two hundred and thirty-seven years, since our ancestors first made it a harbor; but the sea has gained, until a little strip of drifting sand one hundred feet wide and twelve feet high is the only barrier between the ocean on the outer side, which rises some eight feet higher than the water of the harbor on the inner side at the point called East harbor, and over which the sea partially broke in a storm last winter. Your memorialists beg leave to refer to the instructions of the legislature of Massachusetts to their senators and the representatives in Congress to use their endeavors to obtain an appropriation by Congress for preventing the threatened destruction of Provincetown harbor by the construction of a pier or solid wall from Beach point, in Truro, to the opposite beach at the mouth of East harbor, and earnestly to pray the attention of Congress to the means there recommended as indispensable to preserve this ancient refuge for the mariner. Careful surveys have been made by a competent engineer appointed by the governor, and confirmed by the subsequent survey of Mr. Bache, Superintendent of the United States Coast Survey. Many of your memorialists witnessed or were knowing to these surveys, and can verify the facts there stated.

The Coast Survey urges what all concur in recommending as the only effectual safeguard—the necessity of immediate measures to prevent the sea breaking through this narrow strip of beach. The fact is shown by this last survey that in 1849, at a former coast survey by the United States engineers, this strip of beach, between the outside ocean and the inner harbor, was three hundred feet wide and about forty feet high, presenting a bluff of sand toward the outside shore. In eight years, when the last survey was made, 1857, this barrier was reduced to a hundred feet in width and twelve to fifteen feet high. From the shifting nature of these sands, it is obvious that, unless the proposed wall or breakwater is soon constructed, the next coast survey will find this barrier submerged, and the ocean pouring its deposits of sand through the beach into the main harbor, leaving Provincetown an island, and Cape Cod harbor a comparative shallow of flats.

We venture, respectfully, to suggest that, if a common water privilege, of ordinary value, turning the machinery of a profitable manufactory, were similarly exposed to a loss of the main dam, it would be an instance of great improvidence to leave it unprotected until it should be swept away. The interests of national commerce, which are the peculiar charge of the Congress of the United States, are so important in connexion with the present imminent danger that threatens the destruction of Provincetown harbor, and so little comparative outlay is now required to prevent a disaster which millions might be insufficient to repair, that your memorialists submit, with great confidence, their belief that it is only necessary for Congress to investigate the facts in order to induce them promptly to apply the remedy which we most respectfully pray for.

C.

ENGINEER DEPARTMENT,
Washington, April 30, 1858.

SIR : I have the honor to acknowledge the reference to this office for report of the letter to you, dated 28th April, from Hon. J. Cochran, of the House Committee on Commerce, enclosing for your information, and asking for your opinion in relation thereto, several petitions from citizens of Massachusetts, praying Congress to make an appropriation for the protection of Provincetown harbor, at Cape Cod, by the erection of a sea-wall from Beach Point, in Truro, to the opposite beach at the mouth of East harbor.

Below is an extract from a report on the same subject, made from this office May 6, 1856, in reply to a call from the Senate Committee on Commerce :

"I have the honor to report that the subject of improvement of Cape Cod harbor has been many times brought before Congress, and reported upon by this department, though the particular work now suggested has never, I believe, been considered ; that it was examined in 1853 by a committee of the legislature of Massachusetts, which was instituted from a conviction of its importance to the commercial interests of the country ; and that the committee agreed with the petitioners in recommending that some steps should be taken by the general government to arrest the deterioration which it is asserted the harbor is undergoing.

"As to the necessity for, or the probable effect of, the particular work specified in the resolution of the Senate, the information we possess does not justify a decided opinion. It is probable, however, that the construction of the dike will hasten the filling up of East harbor by the drifting sand, and thus strengthen the beach on that side, which is now represented as liable to be broken through in severe storms. It is also impossible to present a reliable estimate of its cost, owing to this want of detailed information ; but it may be assumed, from comparing it with similar works, that it will not fall short of \$20,000."

No additional information in relation to the proposed works at Cape Cod has been received at this office since the date of the report above quoted.

Mr. Cochran's letter is returned herewith, with its enclosures.

I am, very respectfully, sir, your most obedient,

H. G. WRIGHT,

Captain of Engineers, in charge.

Hon. JOHN B. FLOYD,

Secretary of War.

D.

Report of Assistant H. L. Whiting on the topographical resurvey of Provincetown harbor, Mass., and development of changes of shore line in its vicinity.

WEST TISBURY, MASS.,

December 15, 1857.

DEAR SIR: I report herewith the result of my resurvey of Provincetown harbor, Cape Cod.

A careful resurvey of the entire shore of the Cape has been made from the Highland light in Truro, continuing around the outside shore to the Race Point light; thence to Long Point light and along the inner shore of the harbor, including a resurvey of the wharves and shore line at Provincetown, and extending past East harbor to Pond village, in Truro, nearly opposite to the Highland light. This work comprises about twenty miles of shore line.

The general changes in the actual shore line are not remarkable; in fact, the general line of the shore is almost what it was in 1849. The wind has gradually blown away the sand hills, however, and the effect has been to drive the sand in upon the Cape. At Race Point considerable change has taken place. The opening of Race Run has worked nearer to the point, and the action of the storms and the sea has been such as to beat in the beach. The shore has also considerably altered in shape, showing some change in the action of the currents and tide.

The opening at Lance's harbor (so called) between Race Point and Long Point has closed, and for an extent of two and a half or three miles the beach has been driven in from a hundred to three hundred feet.

At Long Point the sand has accumulated, and the solid fence which was built some years since from the main beach of Long Point or "Wood End" to the small sand spit or island upon which the lighthouse stood in 1849, has caused quite a strip of beach to be thrown up on either side of it, so that now the highest tides never overflow it. During the last summer a crop of beach grass was started upon this ridge of sand. Not only along the fence—an increased deposit of sand seems to have been made at the extremity and on the outside shore of Long Point.

From Long Point no change seems to have occurred along the town shore excepting about East Harbor inlet. This has changed considerably, and a strong tidal current through the opening is wearing away the shores of the creek and lagoon called East harbor. I am informed that a great quantity of sand is carried out by the ebb tide and deposited in the main harbor, and that the flats and shoal water in this part of the harbor are constantly increasing. There has certainly been much shifting of sand about the inlet. The main channel of the creek has changed its course in one place, and cut into a drift sand hill about forty feet in height some three hundred feet since the survey of 1849.

The most important change, however, as regards the probable consequences, if means are not taken to prevent them, is in the outside beach opposite the "head of the meadow," a tract of marsh through which the East Harbor creek winds. This marsh extends nearly to the outside shore, leaving only a low and narrow strip of beach connecting the high ground of Truro with the peninsula of Provincetown.

Opposite to the marsh and lower portion of beach, the sea has encroached more from the outside than at any other place between the Highland light and Race Point. There is one point at which a cove of marsh made up from the inside, and in 1849 came within about three hundred feet of the outside shore. The beach here was, however, about forty feet high, presenting a bluff of sand toward the outside shore. This beach is now only about a hundred feet wide, and from twelve to fifteen feet high. The sea, I believe, broke over it during a violent storm last winter.

The difference of the level of tide between the outside and inside of the peninsula at the same time is very considerable, perhaps not less than four or five feet even at the mouth of East harbor, and at the "head of the meadow" probably the *whole tide*, so that if the sea should once form a channel through the beach, it would flow into the creek and rush through into the harbor with great force. The effect would be most disastrous to the harbor, such as probably to change its character, or perhaps entirely destroy it. * * * * *

Attention should be given to the condition of this shore *at once*, and the importance urged of immediate measures to guard against the consequences of the sea breaking through this narrow strip of beach.

Very respectfully, yours,

HENRY L. WHITING,
Assistant Coast Survey.

Prof. A. D. BACHE,
Superintendent Coast Survey.

